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EXAMINER	
MILLER, ROSE MARY	
ART UNIT	**PAPER NUMBER**
2856	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/683,743	DEVENEY ET AL.	
	Examiner	Art Unit	
	Rose M Miller	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hayford et al. ("The correlation of ultrasonic attenuation and shear strength in graphite-polymide composites")** in view of **Ansberg (SU 1322138 A)**.

Hayford et al. discloses providing a composite first part (see page 431, 1st paragraph); introducing ultrasound to the first part (page 431, 1st paragraph), receiving reflections of the ultrasound introduced to the first part (page 431, 1st paragraph) and predicting a residual strength (page 431, 1st paragraph in combination with Figure 6 showing the relationship between the attenuation and the failure load) using an attenuation of the received reflections. **Hayford et al.** also discloses correlating the attenuation of at least one received reflection of at least one second part with at least one non-ultrasound test of the second part and specifically wherein the non-ultrasound test is a destructive test of the second part (see pages 438-443). **Hayford et al.** also discloses correlating the attenuation of at least one received reflection of a plurality of

second parts with at least one non-ultrasound test of each of the second parts and specifically wherein the non-ultrasound test is a destructive test of the second part (see pages 438-443).

With regards to claims 1-3, 5, 10, and 19, **Hayford et al.** discloses the claimed invention with the exception of using an amplitude of the received reflections to predict the residual strength of the composite part and the composite part comprising an aircraft engine part. **Ansberg** teaches that it is known to correlate the amplitude of the received reflections to the strength of the article under test. **Hayford et al.** teaches with Figure 6 that a measurement of attenuation can be correlated to the failure load of the part under test. It is known throughout the art of ultrasonic testing that an indication of Failure Load is an indication of either the residual strength of a part or the life expectancy of the part under test. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of **Hayford et al.** to correlate the amplitude of the received reflection to the predicted residual strength of the material under test as it is well known throughout the art that in order to measure an attenuation, one must first measure the amplitude of the reflected wave and **Ansberg** clearly teaches that using just the amplitude would reduce the amount of computations necessary to determine the strength of the material under test. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 4, **Hayford et al.** discloses the claimed invention with the exception of the destructive test of the second part comprising a core sample test and the composite part comprising an aircraft engine part. **Hayford et al.** discloses using a "standard short beam shear test" as the destructive test that is correlated with the ultrasound attenuation measured. Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to correlate the amplitude of the reflections with the results of a core sample test as the performance of a core sample test is a standard destructive test used to determine a problem with sample or part and **Hayford et al.** teaches correlating a known standard destructive test with a non-destructive ultrasound test. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 6, **Hayford et al.** discloses the claimed invention with the exception of the correlation of the amplitude comprises generating a linear least squares fit between the amplitudes and a plurality of results from the non-ultrasound tests and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 3rd paragraph, using a "reasonable straight line fit" to the data and on page 442 using "a linear regression analysis of the data". This is also shown in the graph presented in Figure 6 which correlates the measured attenuation with the Failure Load of the tested part. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made utilize a least squares fit between the measured attenuations (or amplitudes) and a plurality of results from the non-ultrasound (or destructive) tests as the least squares fit is a well known "linear regression analysis" used throughout the art. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claims 7-8, **Hayford et al.** fails to specifically disclose the residual strength predicted being a residual shear strength and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 1st paragraph, using the "nondestructive pulse-echo method" to yield "a quantitative estimate of the short beam shear strength". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the "residual strength" being measured or predicted would be a residual shear strength as the shear strength is the strength being measured. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 9, **Hayford et al.** discloses the claimed invention with the exception of the correlation of the amplitude comprises generating a linear least squares fit between the amplitudes and a plurality of results from the non-ultrasound tests and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 3rd paragraph, using a "reasonable straight line fit" to the data and on page 442 using "a linear regression analysis of the data". Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made utilize a least squares fit between the measured attenuations (or amplitudes) and a plurality of results from the non-ultrasound (or destructive) tests as the least squares fit is a well known "linear regression analysis" used throughout the art. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would

work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claims 11-12 and 14, **Hayford et al.** discloses the claimed invention with the exception of a memory containing a correlation of an amplitude (or a plurality of amplitudes) of at least one received reflection of at least one second part (or a plurality of parts) with at least one non-ultrasound test, or destructive test, of the (or each) second part, said processor further configured to predict a residual strength of the first part using an amplitude of a received ultrasound reflection and the correlation and the composite part comprising an aircraft engine part. **Hayford et al.** discloses correlating the attenuation of at least one received reflection of at least one second part with at least one non-ultrasound test of the second part and specifically wherein the non-ultrasound test is a destructive test of the second part (see pages 438-443). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of **Hayford et al.** to include the above measured correlation in a memory such that a residual strength of a first part could be predicted using the received reflections and the correlation as **Ansberg** clearly teaches storing a correlation in a memory for the sole purpose of determining the strength of a material by correlating an amplitude of a received reflection with a stored correlation dependency. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 13, **Hayford et al.** discloses the claimed invention with the exception of memory containing a correlation of an amplitude of at least one received reflection of at least one second part with a core sample test and the composite part comprising an aircraft engine part. **Hayford et al.** discloses using a "standard short beam shear test" as the destructive test which is correlated with the ultrasound

attenuation measured. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to correlate the amplitude of the reflections with the results of a core sample test by utilizing a correlation base on such stored in a memory as the performance of a core sample test is a standard destructive test used to determine a problem with sample or part and **Hayford et al.** teaches correlating a known standard destructive test with a non-destructive ultrasound test and **Ansberg** clearly teaches storing a correlation in a memory for the sole purpose of determining the strength of a material by correlating an amplitude of a received reflection with a stored correlation dependency. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 15, **Hayford et al.** discloses the claimed invention with the exception of the correlation of the amplitude comprises generating a linear least squares fit between the amplitudes and a plurality of results from the non-ultrasound tests and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 3rd paragraph, using a "reasonable straight line fit" to the data and on page 442 using "a linear regression analysis of the data". Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made utilize a least squares fit between the measured attenuations (or amplitudes) and a plurality of results from the non-ultrasound (or destructive) tests as the least squares fit is a well known "linear regression analysis" used throughout the art. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would

work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claims 16-17, **Hayford et al.** fails to specifically disclose the residual strength predicted being a residual shear strength and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 1st paragraph, using the "nondestructive pulse-echo method" to yield "a quantitative estimate of the short beam shear strength". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the "residual strength" being measured or predicted would be a residual shear strength as the shear strength is the strength being measured. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

With regards to claim 18, **Hayford et al.** discloses the claimed invention with the exception of the correlation of the amplitude comprises generating a linear least squares fit between the amplitudes and a plurality of results from the non-ultrasound tests and the composite part comprising an aircraft engine part. **Hayford et al.** discloses on page 439, 3rd paragraph, using a "reasonable straight line fit" to the data and on page 442 using "a linear regression analysis of the data". Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made utilize a least squares fit between the measured attenuations (or amplitudes) and a plurality of results from the non-ultrasound (or destructive) tests as the least squares fit is a well known "linear regression analysis" used throughout the art. As for testing an aircraft engine part, it would have been obvious to one of ordinary skill in the art at the time the invention was made to test aircraft parts on the system disclosed by **Hayford et al.** as **Hayford et al.** teaches testing a composite and the research **Hayford et al.** is based upon was made under a grant from NASA. The majority of aircraft parts (or space craft

parts) are made from composite parts. Therefore, the invention of **Hayford et al.** would work equally well on aircraft engine parts as on the disclosed generic composite components.

Response to Arguments

4. Applicant's arguments filed 10 November 2003 have been fully considered but they are not persuasive.

Applicant argued the following with regards to the objections of Claims 1-20 because of informalities:

> *"The objection of Claims 1-20 because of informalities is respectfully traversed. Applicants have amended the claims to correct inconsistencies in plural and singular usage. Accordingly, Applicants respectfully request that the objection of Claims 1-20 because of informalities be withdrawn."*

Applicant's Amendments have overcome the previous objections because of informalities.

Applicant argued the following with regards to the rejection of Claim 19 under 35 U.S.C. S 102(b) as being anticipated by **Hayford et al.**:

> *"The rejection of Claim 19 under 35 U.S.C. S 102(b) as being anticipated by Hayford et al. (hereinafter "Hayford") is respectfully traversed.*
>
> *Hayford describes a nondestructive pulse-echo method that yields a quantitative estimate for developing an "accept or reject" criterion in a quality assurance program. Page 439, first paragraph. Hayford also describes that those specimens with higher values of attenuation generally fail at the lower values of failure loads. Page 441. Hayford suggests that it "might also be possible to develop the technique for monitoring the growth of damage in composites subjected to various load-time histories to a point that would allow prediction of the residual strength of the composite." Page 431, "Conclusions and Significance", first paragraph.*
>
> *Claim 19 recites an ultrasound inspection device including "means for nondestructively testing a first aircraft engine part; and means for predicting a residual strength of the first aircraft engine part using a result from a non-destructive test of the first aircraft engine part with a plurality of destructive and non-destructive tests on second aircraft engine parts substantially similar to the first part".*
>
> *Hayford does not describe or suggest an ultrasound inspection device including means for nondestructively testing a first aircraft engine part, and means for predicting a residual strength of the first aircraft engine part using a result from a non-destructive test of the first aircraft engine part with a plurality of destructive and non-destructive tests on second aircraft engine parts substantially similar to the first part. Rather, Hayford describe a nondestructive pulse-echo method that yields a quantitative estimate for*

> *developing an "accept or reject" criterion in a quality assurance program. For the reasons set forth above, Claim 19 is submitted to be patentable over Hayford."*

Hayford et al. does teach a "accept or reject" criterion. However, this is an invalid argument as Applicant's invention is also part of a "accept or reject" system and the system disclosed by **Hayford et al.** is more than the "accept or reject" as argued by Applicant. **Hayford et al.** teaches that a measured attenuation can be correlated to a Failure Load (see Figures 6 and 8) and it is the measured Failure Load that is used in determining the "accept or reject" of a composite part under test. It is well known throughout the art of composite testing that Failure Load is a straightforward indication of the residual strength of a composite and it is often taken as the measurement of "residual" strength of the part under test. Therefore, **Hayford et al.** does teach measuring "residual strength" of the composite part under test.

As for Applicant's arguments about **Hayford et al.** suggesting that it "might be possible to develop the technique for monitoring the growth of damage", these arguments are moot as Applicant does not claim "monitoring the growth of damage" in claim 19. Even if the limitation was present in the claim, the mere suggestion of such a design modification by **Hayford et al.** is a reason for applying the reference in a 103 as a reference is utilized for everything taught in the reference, not just for the best mode of the invention disclosed.

However, as **Hayford et al.** does not specifically mention testing of an "aircraft engine" part, the rejection of claim 19 35 U.S.C. S 102(b) as being anticipated by **Hayford et al.** has been withdrawn.

Claim 20 has been canceled. Therefore, any rejections of claim 20 have been withdrawn.

With regards to the rejection of claims 1-18 under 35 U.S.C. § 10 3(a) as being unpatentable over Hayford in view of Ansberg, Applicant argues the following:

> *"Hayford is described above. Ansberg describes that a test section of a rail is scanned and a coefficient of variation of the amplitude of the detected vibrations is determined on the control section using an electronic calculator. Ansberg also describes that the strength limit of a corroded test rail is then calculated using the obtained coefficient of variation of the amplitude of the detected vibrations and a correlation dependency.*
>
> *Claim 1 recites a method of ultrasound inspection including "providing a composite first aircraft engine part; introducing ultrasound to the first aircraft engine part; receiving at least one reflection of the ultrasound introduced to the first aircraft engine part; and predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection".*
>
> *Neither Hayford nor Ansberg describe or suggest a method including providing a composite first aircraft engine part, introducing ultrasound to the first aircraft engine part, receiving at least one reflection of the ultrasound introduced to the first aircraft engine part, and predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection. Moreover, neither Hayford nor Ansberg describe or suggest a method including predicting a residual strength of the first aircraft engine part using an amplitude of the received reflection. Rather, as stated in the office action dated July 9, 2003 Hayford does not describe "using an amplitude of the received reflections to predict residual strength of the composite" (page 5), and Ansberg describe an obtained coefficient of variation of the amplitude of the reflected vibrations. Additionally, both Hayford and Ansberg are silent with respect to aircraft engine parts. For the reasons set forth above, Claim 1 is submitted to be patentable over Hayford in view of Ansberg."*

Hayford et al. does teach a "accept or reject" criterion as argued above. However, this is an invalid argument as Applicant's invention is also part of a "accept or reject" system and the system disclosed by **Hayford et al.** is more than the "accept or reject" as argued by Applicant. **Hayford et al.** teaches that a measured attenuation can be correlated to a Failure Load (see Figures 6 and 8) and it is the measured Failure Load that is used in determining the "accept or reject" of a composite part under test. It is well known throughout the art of composite testing that Failure Load is a straightforward indication of the residual strength of a composite and it is often taken as the measurement of "residual" strength of the part under test (see Figures 6 and 8). Therefore, **Hayford et al.** does teach measuring "residual strength" of the composite part under test.

The **Ansberg** reference is merely relied upon to teach the correlation of the actual measured amplitude to the "strength" of the part under test. Therefore, **Ansberg** is used to modify **Hayford et al.** by teaching the necessary correlation. **Ansberg** does

not have to specifically correlate the amplitude to the strength, just to show that the correlation is possible.

As for testing aircraft engine parts, it is well known throughout the art of ultrasonic measuring and testing that a test performed on one composite part is performable on a different composite part without any major modifications to the testing. Such modification due to the size and shape of the object under test are well within the skills of one of ordinary skill in the art. Furthermore, the research performed for the **Hayford et al.** reference was sponsored by NASA. Therefore, it would have been obvious to one of ordinary skill in the art to utilize the testing procedure on aircraft or spacecraft engine parts also as the engine parts are themselves composites.

Applicant continues to argue:

> *"Claim 10 recites a ultrasound inspection system including "a pulse echo transducer; and a processor operationally coupled to said transducer, said processor configured to predict a residual strength of a first aircraft engine part using an amplitude of a received ultrasound reflection".*
>
> *Neither Hayford nor Ansberg describe or suggest a ultrasound inspection system including a pulse echo transducer, and a processor operationally coupled to the transducer, wherein the processor is configured to predict a residual strength of a first aircraft engine part using an amplitude of a received ultrasound reflection. Moreover, neither Hayford nor Ansberg describe or suggest a processor configured to predict a residual strength of a first aircraft engine part using an amplitude of a received ultrasound reflection. Rather, as stated in the office action dated July 9, 2003 Hayford does not describe "using an amplitude of the received reflections to predict residual strength of the composite" (page 5), and Ansberg describe an obtained coefficient of variation of the amplitude of the reflected vibrations. Additionally, both Hayford and Ansberg are silent with respect to aircraft engine parts. For the reasons set forth above, Claim 10 is submitted to be patentable over Hayford in view of Ansberg."*

Applicant appears to be repeating the arguments previously presented, just changed slightly for the purposes of applying them to the apparatus claimed in Claims 10-18. Therefore, all of the responses presented above are valid in response to these arguments also. Please see the Responses above and the rejections of the claims for the complete response.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kraska et al. (US 4,089,225) discloses a system for measuring residual tire life and prediction by ultrasound.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M Miller whose telephone number is 571-272-2199. The examiner can normally be reached on Monday - Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMM
22 March 2004

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800